

What is claimed is:

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1. A system for communicating commands and sensed data between remote devices, the system comprising:

a plurality of transceivers, each transceiver being in communication with at least one other of the plurality of transceivers, wherein each transceiver has a unique address, wherein the unique address identifies an individual transceiver, wherein each transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages;

a controller, connected to one of the plurality of transceivers, the controller being in communications with each of the plurality of transceivers via the controller transceiver, the controller communicating via preformatted messages,

wherein the preformatted messages comprises at least one packet, wherein the packet comprises:

a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique address of the sending transceiver;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

an error detector comprising a redundancy check error detector;

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wherein the controller sends preformatted command messages via its associated transceiver, and the plurality of transceivers send preformatted response messages.

5 2. The system of claim 1, wherein the plurality of transceivers further comprise at least one integrated transceiver, wherein the integrated transceiver comprises:

one of the plurality of transceivers; and

a sensor detecting a condition and outputting a sensed data signal to the transceiver.

10 3. The system of claim 2, wherein the at least one integrated transceiver receives the preformatted command message requesting sensed data, confirms the receiver address as its own unique address, receives the sensed data signal, formats the sensed data signal into scalable byte segments, determines the number of segments required to contain the
15 sensed data signal, and generates and transmits the preformatted response message comprising at least one packet, wherein the packets are equal to the number of segments.

4. The system of claim 3, wherein a packet further comprises:

20 a packet length indicator which indicates a total number of bytes in the current packet;

a total packet indicator which indicates the total number of packets in the current message;

~~a current packet indicator which indicates which packet of the total~~

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packets the current packet is; and

a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generates a response message number formed by a mathematical combination of the sender message number and a
5 predetermined offset.

5. The system of claim 4, wherein the packet further comprises a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a
10 first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

wherein the postscript comprises a low voltage output.

6. The system of claim 5, wherein each transceiver is in wireless communication
15 with at least one other of the plurality of transceivers.

7. The system of claim 6, wherein the wireless communication comprise radio frequency (RF) communication.

20 8. The system of claim 7, wherein the wireless communication comprise low powered RF communication.

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9. The system of claim 8, wherein the preformatted message comprises Manchester encoding.

10. The system of claim 1, wherein the plurality of transceivers further comprise
5 at least one integrated transceiver, wherein the integrated transceiver comprises:

one of the plurality of transceivers; and

a sensor detecting a first condition and outputting a sensed data signal to the transceiver; and

10 wherein the plurality of transceivers further comprises at least one actuated transceiver, wherein the actuated transceiver comprises:

one of the plurality of transceivers;

a sensor detecting a second condition and outputting a sensed data signal to the transceiver; and

15 an actuator controlling a third condition and receiving control signals from the transceiver.

11. The system of claim 10, wherein a packet further comprises:

a packet length indicator which indicates a total number of bytes in the current packet;

20 a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

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a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generates a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

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12. The system of claim 11, wherein the packet further comprises a preface and a postscript;

wherein the preface comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level; and

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wherein the postscript comprises a low voltage output.

13. The system of claim 12, wherein each transceiver wirelessly communicates with at least one other of the plurality of transceivers.

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14. The system of claim 13, wherein the wireless communication comprises radio frequency (RF) communication.

15. The system of claim 14, wherein the RF communication comprises a low powered RF communication.

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16. The system of claim 15, wherein the preformatted message comprises Manchester encoding.

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17. A system for communicating commands and sensed data between remote devices, the system comprising:

5 a plurality of transceivers, each transceiver being in communication with at least one other of the plurality of transceivers, wherein each transceiver has a unique address, wherein the unique address identifies an individual transceiver, wherein each transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages;

10 a controller, connected to at least one of the plurality of transceivers, the controller being in communication with each of the plurality of transceivers via the controller transceiver, the controller communicating via preformatted messages, wherein the preformatted messages comprises at least one packet, wherein the packet comprises:

15 a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;

a sender address comprising the unique address of the sending transceiver;

a command indicator comprising a command code;

20 at least one data value comprising a scalable message; and

an error detector comprising a redundancy check error detector;

wherein the controller sends preformatted command messages via its associated transceiver, and the plurality of transceivers sends preformatted response messages; and

wherein at least one of the plurality of transceivers further sends preformatted emergency messages.

18. The system of claim 17, wherein the controller maintains periods of silence by not sending the preformatted command messages during predetermined time periods; and

wherein the at least one of the plurality of transceivers detects a period of silence and sends the preformatted emergency message during the period of silence.

19. A system for controlling geographically diverse devices from a central location, the system comprising:

means for sending and receiving messages, wherein the sent messages contain commands and the received messages contain certain responses to the commands, wherein the message comprises at least one means for packeting a message;

a plurality of means for communicating information, the communicating means comprising:

means for receiving messages;

means for preparing responses to the received message; and

~~means for sending the response message;~~

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wherein each communicating means has a unique identifying address; and

wherein the packeting means comprises

means for identifying intended recipients;

means for identifying the sender;

means for indicating a command;

means for data transfer; and

means for indicating potential error.

20. The system of claim 19, wherein the packeting means further comprises:

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means for indicating a length of a packet;

means for indicating a total number of packets in a message;

means for uniquely identifying a message;

means for alerting the recipients to an incoming packet; and

means for indicating an end of a packet.

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21. The system of claim 20, wherein the plurality of means for communicating further comprises at least one means for integrated sensing and communicating:

wherein the integrated means comprises:

one of the communicating means, wherein the preparing means

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further comprises means for receiving a data signal; and

means for sensing a condition and outputting a sensed data signal

to the preparing means.

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22. The system of claim 21, wherein the preparing means evaluates the received message for the correct unique receiver address, identifies the command code, receives the sensed data signal, processes the sensed data signal into scalable segments and prepares the packets of the message and the sending means sends the message.

23. The system of claim 22, wherein the communicating means communicates wirelessly.

10 24. The system of claim 23, wherein the communicating means wirelessly communicates via radio frequency (RF).

25. The system of claim 24, wherein the communicating means wirelessly communicates via low powered RF.

15 26. A system for controlling geographically diverse devices from a central location.

means for sending and receiving messages, wherein the sent messages comprise commands and the received messages comprise responses to the commands, wherein the message comprises at least one means for packeting a message.

20 a plurality of means for communicating information, the communicating means comprising:

means for receiving messages;

~~means for preparing responses to the received~~ message; and

means for sending the response message;

wherein each communicating means has a unique identifying address; and

wherein the packeting means comprises:

means for identifying intended recipients;

means for identifying the sender;

means for indicating a command;

means for data transfer;

means for indicating potential error;

means for indicating a byte length of a packet;

means for indicating a total number of packets in a message;

means for identifying a message;

means for alerting the recipient to an incoming packet; and

means for indicating and end of a packet.

27. The system of claim 26, wherein the plurality of means for communicating further comprises at least one means for integrated sensing and communicating.

wherein the integrated means comprises:

one of the communicating means, wherein the preparing means further comprises means receiving a data signal; and

means for sensing a condition and outputting a sensed data signal to the preparing means.

28. The system of claim 27, wherein the preparing means evaluates the received message for the correct unique receiver address, identifies the command code, receives the sensed data signal process, the sensed data signal into scalable segments and prepares the packets of the message, and the sending means sends the message.

29. The system of claim 28, wherein the communicating means communicates wirelessly.

30. The system of claim 29, wherein the communicating means wirelessly communicates via radio frequency (RF).

31. The system of claim 30, wherein the communicating means wirelessly communicates via low-powered (RF).

32. The system of claim 27, wherein the plurality of means for communicating further comprises at least one means for integrated sensing, condition control, and communicating;

wherein the integrated actuated means comprises:

one of the communications means, wherein the preparing means further comprises means for receiving data signals and outputting control signals; means for sensing a first condition and outputting a sensed data signal to the preparing means; and

means for receiving control signals and controlling a second condition in response to the received control signals.

33. The system of claim 32, wherein the preparing means evaluates the received message for the correct unique receiver address, identifies the command code, receives the sensed data signal, processes the sensed data signal into scalable segments and prepares the packets of the message, and the sending means sends the message.

34. The system of claim 33, wherein the packeting means further comprises:

means for indicating a byte length of a packet;
means for indicating a total number of packets in a message;
means for uniquely identifying a message;
means for alerting the recipient to an incoming packet; and
means for indicating an end of a packet.

35. The system of claim 34, wherein the communicating means communicates wirelessly.

36. The system of claim 35, wherein the communicating means wirelessly communicates via radio frequency (RF).

~~37. A method of communicating between geographically remote devices, the method comprising:~~

sending a message;

receiving the message at one or more of the remote devices;

processing the message;

preparing a response message;

5 receiving the response message;

processing the response message

wherein all messages comprise at least one packet, the packet having a
predetermined format;

wherein the predetermined format comprises:

10 a receiver address comprising a scalable address of the at least one
of the intended receiving remote devices;

a sender address comprising an unique address of the sender;

a command indicator comprising a command code;

at least one data value comprising a scalable message; and

15 an error detector comprising a redundancy check error detector;

and

wherein the steps of sending and receiving are repeated until the message
is received by the intended receiver.

20 38. The method of claim 37, wherein the predetermined format further
comprises:

a packet length indicator which indicates a total number of bytes in the
current packet;

a total packet indicator which indicates the total number of packets in the current message;

a current packet indicator which indicates which packet of the total packets the current packet is; and

5 a message number, wherein the controller generates a sender message in the preformatted command message and the transceiver generates a response message number formed by a mathematical combination of the sender message number and a predetermined offset.

10 39. The method of claim 38, wherein preparing a response message further comprises:

receiving a data signal;

processing the data signal into scalable segments;

determining the number of segments; and

15 preparing the response message wherein the total packet and indicator is equal to the number of segments.

40. The method of claim 39, wherein the steps of sending and receiving further comprise wirelessly sending and receiving

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41. The method of claim 40, wherein the steps of wirelessly sending further comprise wirelessly sending and receiving via radio frequency (RF).

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42. The method of claim 41, wherein the steps of wirelessly sending and receiving further comprise wirelessly sending and receiving via low powered RF.

43. The method of claim 42, wherein the step sending further comprises
5 sending via Manchester encoding.

44. The method of claim 43, wherein the predetermined format further comprises a predetermined sequence comprising a first logic level and a subsequent sequence comprising at least two bytes of a second logic level

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45. A RF transmitted signal, the signal comprising:

a receiver address;

a sender address;

a command code;

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data; and

a error detector.

46. The signal of claim 45, wherein between the sender address and the command code, the signal further comprises:

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a packet length;

a total packet count;

a current packet indicator; and

a message number.

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47. The signal of claim 46, wherein the signal further comprises a preface before the receiver address and a post script after the error detector.

5 48. The method of claim 47, wherein the signal is transmitted via Manchester
~~encoding~~